

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

McGarian at 54 in FIGS. 6–8 or, alternatively, at 58 in FIG. 9) “contact a wellbore at a substantially same axial location as the cutting elements 54 or 58 on the other blade.”

The Applicant respectfully submits that the bars (54) shown in FIG. 6 of McGarian are not “cutting elements,” as is known in the art. Claim 132 recites cutting elements that are disposed on a blade. The blade is, in turn, formed on a reamer pad. McGarian shows a reamer pad (*i.e.*, 52) with a blade (*i.e.*, bar 54). McGarian does not disclose any cutting elements at all. Further, if the bar 54 of McGarian is taken to be a cutting element, then McGarian does not disclose a blade on which the cutting element is disposed, as recited in claim 132.

Additionally, the Applicant respectfully submits that McGarian does not disclose, either explicitly or implicitly, that the “other blade” includes cutting elements that are at the same axial position as those on the first blade. McGarian does not disclose any axial position of the cutting elements on the other blade. In fact, as discussed above, McGarian does not disclose any cutting elements at all, let alone cutting elements that are at substantially the same axial position.

Thus, the Applicants’ invention, as recited in claim 132, is not disclosed by McGarian, and claim 132 is patentable over McGarian. Dependent claims 133–135, 139, 140, and 150 are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Further, claim 133 recites that at least one of polycrystalline diamond inserts, tungsten carbide inserts, and boron nitride inserts are used. The only inserts disclosed in McGarian are inserts 57 shown in FIG. 9. The inserts are shown at different axial positions, and McGarian does not disclose, either explicitly or implicitly, that any inserts

on another blade are at substantially the same axial position.

Thus, McGarian does not disclose all of the limitations in claim 133. Accordingly, withdrawal of this rejection is respectfully requested.

### **Rejections under 35 U.S.C § 103**

#### **REJECTIONS OF CLAIMS 143, 145, 146, AND 149:**

Claims 143, 145, 146, and 149 were rejected under 35 U.S.C. § 103 as being obvious over U.S. Patent No. 5,853,054 (“McGarian”). As described above, independent claim 132, from which all if these claims depend, is allowable over McGarian. Dependent claims 143, 145, 146, and 149 are allowable for at least the same reasons. Accordingly, withdrawal of the rejection is respectfully requested.

#### **REJECTIONS OF CLAIMS 132-135, 139, 140, 143, 145, 146, AND 148-150:**

##### **Cited Art Does Not Teach or Suggest All Elements**

Claims 132-135, 139, 140, 143, 145, 146, and 148-150 were rejected under 35 U.S.C. § 103 as being obvious over U.S. Patent No. 5,853,054 (“McGarian”) in view of U.S. Patent No. 5,607,025 (“Mensa-Wilmot ‘025”).

Claim 132 recites an expandable reaming tool that includes at least two reamer pads, at least one blade formed on each of the at least two reamer pads, and a plurality of cutting elements disposed on the blades. The at least two reamer pads are operatively coupled to a tool body and adapted to be displaced between a retracted and an expanded position. Further, selected ones of the plurality of cutting elements disposed on one of

the at least two reamer pads are positioned at a substantially same axial location as other selected ones of the plurality of cutting elements so as to form a redundant cutting arrangement.

The Examiner asserts that McGarian discloses the invention of claim 132 except for the “redundant” cutters. The applicant assumes that the Examiner means that McGarian does not teach or suggest cutting elements of a reamer pad that are “positioned to contact a wellbore at a substantially same axial location” as other cutting elements.

The Examiner further asserts that Mensa-Wilmot '025 (col. 12, ll. 6–8) teaches redundant cutters. Again, the Applicant assumes that the Examiner means that Mensa-Wilmot '025 teaches cutting elements of a reamer pad that are “positioned to contact a wellbore at a substantially same axial location” as other cutting elements. The Applicant respectfully disagrees with this characterization of the prior art reference.

Claim 132 recites cutting elements that “contact a wellbore at a substantially same axial location” as another cutting element. Mensa-Wilmot '025 cannot make up for the deficiency of McGarian because Mensa-Wilmot '025 does not teach or suggest cutting elements that contact a wellbore.

The definition of “wellbore,” as is known in the art, is the “inside diameter of the wellbore wall.” The enclosed sheets are pages from the *Illustrated Petroleum Dictionary and Products Manual*. The definition of “bore,” on page 62, is “the inside diameter of a bearing, pipe cylinder, etc.” Thus, the word “wellbore” means the inside diameter of the well, or the side wall. Cutters on the bottom of a drill bit, as taught in Mensa-Wilmot '025, do not contact a wellbore; they contact the bottom of the hole.

Because the neither McGarain nor Mensa-Wilmot '025, whether considered

separately or in combination, teach or suggest the invention recited in claim 132, claim 132 is allowable over the cited art. Dependent claims 133–150 are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

#### No Motivation to Combine

Even assuming *arguendo* that the references do contain all of the limitations that are recited in the claims, the invention is nonetheless patentable because there is no motivation to combine the references.

Applicant respectfully submits that the quoted passage of Mensa-Wilmot '025 (col. 12, ll. 6–8) highlights the differences between a reamer and a drill bit. The cited passage of Mensa-Wilmot '025 teaches that some cutting elements are positioned to follow in the same “swath or kerf cut by a preceding cutter element.” Mensa-Wilmot '025, however, is a drill bit, and the cutting structures (40) are disposed at the bottom of the drill bit. They must be in that position because a drill bit must drill the material at the bottom of the hole.

A reamer, however, is a different tool. A reamer expands, or reams, an existing hole to a larger diameter. Thus, there is no need to have the cutting structures disposed at a bottom end of a reamer, as with a drill bit. As known in the art (and stated in the Declaration of Graham Mensa-Wilmot at paragraph 10, submitted with the previous response), successful cutter element arrangements for drill bits may not be successful for underreamers, and vice versa. Because of the difference in the functions and structures of a drill bit and a reamer, a person having ordinary skill in the art would not be motivated to combine McGarian with Mensa-Wilmot '025.

Finally, the Applicant respectfully submits that the Examiner has failed to rebut the Applicants' prima facie case that there is no motivation to combine the references. The Applicant admits that Mensa-Wilmot '025 solves a similar problem as the present invention. The present invention, however, is related to reamers, not drill bits. The Applicants have provided an explanation of the differences between these two devices, as well as an affidavit under § 1.132 of a skilled artisan stating that a person having skilled would have not looked to Mensa-Wilmot '025 to solve the problem as it relates to reamers. Without rebutting the Applicants' prima facia case, the claims are patentable over the cited references.

In view of the above, McGarian and Mensa-Wilmot '025 fail to show or suggest the present invention as recited in claim 132. Thus, claim 132 is patentable over McGarian and Mensa-Wilmot '025. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

REJECTION OF CLAIMS 136 AND 147:

Claims 136 and 147 were rejected under 35 U.S.C. § 103 as obvious over McGarian in view of Mensa-Wilmot '025 as applied to claim 132 above, and further in view of either U.S. Patent No. 5,979,576 ("Hansen") or U.S. Patent No. 6,142,250 ("Griffin"). This rejection is respectfully traversed.

As described above with respect to claim 132, McGarian and Mensa-Wilmot '025 fail to show or suggest the present invention as recited in amended claim 132. Further, neither Hansen nor Griffin shows or suggests that which is not provided in McGarian and Mensa-Wilmot '025. Hansen and Griffin teach how to reduce bit whirl by decreasing vibration. At no point do they teach to reduce vibration by employing vibration damping

inserts as recited in claim 136. At no point do they disclose or suggest the cutting element structure as recited in claim 147. Further, Hansen and Griffin do not suggest a redundant cutting arrangement as recited in claim 132.

In view of the above, McGarian, Mensa-Wilmot '025, Hansen, and Griffin fail to show or suggest the present invention as recited in the claim 132. Thus, claims 136 and 147, which are dependent from claim 132, are patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

REJECTION OF CLAIMS 137, 138, AND 144:

Claims 137, 138, and 144 were rejected under 35 U.S.C. § 103 as obvious over McGarian in view of Mensa-Wilmot '025 as applied to claim 132 above, and further in view of either U.S. Patent No. 6,269,893 ("Beaton") or U.S. Patent No. 6,516,293 ("Huang"). This rejection is respectfully traversed.

As described above with respect to claim 132, McGarian and Mensa-Wilmot '025 fail to show or suggest the present invention as recited in claim 132. Further, Beaton and Huang, whether considered separately or in combination, fail to provide that which is not shown or suggested in McGarian and Mensa-Wilmot '025. Beaton and Huang do not teach or suggest the redundant cutting structure of amended claim 132.

In view of the above, McGarian, Mensa-Wilmot '025, Beaton, and Huang fail to show or suggest the present invention as recited in the claim 132. Thus, claims 137-138 and 144, which depend from claim 132, are patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

REJECTION OF CLAIMS 141 AND 142:

Claims 141 and 142 were rejected under 35 U.S.C. § 103 as obvious over

McGarian in view of Mensa-Wilmot '025 as applied to claim 132 above, and further in view of U.S. Patent No. 6,164,394 ("Mensa-Wilmot '394"). This rejection is respectfully traversed.

As described above with respect to claim 132, McGarian and Mensa-Wilmot '025 fail to show or suggest the present invention as recited in claim 132. Further, Mensa-Wilmot '394 fails to show or suggest that which is not provided in McGarian and Mensa-Wilmot '025. Mensa-Wilmot '394 does not disclose the redundant cutting element arrangement of claim 132.

In view of the above, McGarian, Mensa-Wilmot '025, and Mensa-Wilmot '394 fail to show or suggest the present invention as recited in the claim 132. Thus, claims 136 and 147, which are dependent from claim 132, are patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.




**Conclusion**

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 05516.089001).

Respectfully submitted,

Date: 7/6/01

  
Jonathan P. Osha, Reg. No. 33,986  
OSHA & MAY L.L.P.  
1221 McKinney Street, Suite 2800  
Houston, Texas 77010  
Telephone: (713) 228-8600  
Facsimile: (713) 228-8778

# **ILLUSTRATED PETROLEUM DICTIONARY AND PRODUCTS MANUAL**

COMPILED & EDITED BY THE EDITORIAL STAFF OF THE PETROLEUM EDUCATIONAL INSTITUTE.  
G. A. Zamboni, Managing Director.

Published by  
PETROLEUM EDUCATIONAL INSTITUTE  
9020 Melrose Avenue  
Los Angeles 69, Calif.

Copyright ©1962 by the Petroleum Educational Institute, Inc. All rights reserved including right of translation. Printed in the United States of America. This book, or parts thereof, may not be reproduced in any form without permission of the publishers.

Library of Congress Catalog Card Number 62-18323.

**booster compressor.** A supplementary compressor. Describes a compressor which further increases the pressure of compressed air from an air receiver or directly from another compressor. Such a compressor is frequently added to a refrigerating installation to increase its low temperature capacity. In many cases it is used to decrease the temperature of the refrigeration system for the quick-freeze operation.

**booster (eng).** Describes a device used to increase volumetric efficiency. See **supercharger (eng)**.

**booster station (prod).** A relay station for pumping oil or gas.

**booster system (chassis).** Used to apply additional pressure when operating the brake. The most common of these are the *vacuum*, *mechanical*, and *servo-systems*. The servo-system utilizes forces built up in the brake shoe itself to apply additional pressure.

**borderline method (anti-knock).** This is primarily a research test for refiners and automotive manufacturers. It provides 5 road octane numbers for a given fuel when used in a car of a specified compression ratio. The test car is equipped with a "fixed" spark distributor so that no governor advance mechanism is used. A means for accurately controlling the spark setting from the dash is provided. First, a reference fuel framework is set up by recording (for each reference fuel at all spark settings) the RPM at which knocking stops, or what is termed die-out. Starting with 70 octane reference fuel, the car is operated at full throttle with retarded spark and the engine RPM at which knock die-out occurs is recorded. The spark is then advanced, usually 2 degrees at a time, and a full throttle run is made at each spark setting, and the RPM of knock die-out for each setting is recorded. This procedure is repeated until a complete curve is developed from 750 to 1500 RPM. The family of curves thus secured of all the primary reference fuels is called the **reference fuel framework**. Commercial gasolines are then tested, and their knock die-out curves superimposed upon the reference fuel framework. Road octane numbers are then determined by proportioning the fuel being tested between the

two closest reference fuels at 750; 1,000; 1,500; 2,000 and 2,500 rpm. Thus the **B-L method** provides 5 road octane numbers for a given fuel in an engine of a specified compression ratio. Frequently referred to as the **B-L method**.

**bore.** The inside diameter of a bearing, pipe, cylinder, etc.

**borium.** Hard surfacing metal for building up bits used in drilling.

**B of S.** Refers to the National Bureau of Standards.

**bottle gas.** Refers to liquefied petroleum gas; abbreviated as LP-Gas.

**bottle oiler.** This semi-automatic oiler supplies the oil from an inverted bottle. Rotation and vibration causes the steel spindle which rests upon the journal to move up and down. This slight motion allows a small volume of air to enter the bottle from around the clearance of the steel spindle. The air displaces a small quantity of oil, which flows to the

